CLAIMS

1. Assemblages of particles of a magnetic alloy represented by the formula $[T_XM_{1-X}]$ containing T and M in a composition ratio where X in the formula is in the range from 0.3 or greater to 0.7 or less, where T is one or two members of the group consisting of Fe and Co and M is one or two members of the group consisting of Pt and Pd, and metallic elements other than T and M that constitute no more than 30 at.% (including 0 at.%) of $(T+M)$ as a percentage of atoms, and the remainder consists of impurities that are unavoidable from a production standpoint, wherein:

said assemblages of magnetic alloy particles are such that:

A. the face-centered tetragonal fraction is 10–100%,

B. the average grain size as measured by TEM observation (D_{TEM}) is in the range from 5–30 nm,

C. the x-ray crystal grain size derived by x-ray diffraction (D_X) is no less than 4 nm,

D. the particles of the size D_{TEM} above are dispersed from each other at a distance, and

E. 95 or more out of 100 particles satisfy the conditions of Equation (1) below, and Equation (2) is also satisfied;

$$0.90X_{av} \leq X_1, X_2, \ldots X_{100} \leq 1.10X_{av} \quad (1)$$

standard deviation σ of $X_1, X_2, \ldots X_{100} \leq 20\%$ (2)

here, X_{av} represents the value of X in the composition formula $[T_XM_{1-X}]$ as actually measured in the assemblage of particles (the value of X in the average composition of the particle assemblage), and X_1, X_2, ... X_{100} represent the values of X in the composition formula measured in individual particles in TEM-EDX measurement of the assemblages, for

each of 100 particles X_n selected arbitrarily when 1000 particles are in the field of view of measurement.

2. Assemblages of magnetic alloy particles according to claim 1, wherein each particle has fluidity in the state of being dispersed at a distance from each other.

3. Assemblages of magnetic alloy particles according to claim 1, wherein each particle has its position fixed in the state of being dispersed at a distance from each other.

4. Assemblages of magnetic alloy particles according to claim 1, wherein the surface of each particle is coated with a surfactant.

5. Metallic magnetic powder according to claim 1, wherein at least one type of coupling agent selected from the group consisting of a silane coupling agent, titanate coupling agent and an aluminate coupling agent is existed among the individual particles.

6. Assemblages of magnetic alloy particles according to claim 1, wherein the x-ray crystal grain size (D_X) is 6 nm or greater and the coercivity (Hc) is 1000 Oe or greater.

7. Assemblages of magnetic alloy particles according to claim 1, wherein the metallic elements other than T and M are at least one element selected from the group consisting of the Z components defined below;
Z components: Ag, Cu, Sb, Bi and Pb.

8. Assemblages of magnetic alloy particles according to claim 1, wherein the

metallic elements other than T and M are at least one element selected from the group consisting of the N components defined below;

N components: Au, Ru, Rh, Os and Ir.

9. Assemblages of magnetic alloy particles according to claim 1, wherein the particles are dispersed at roughly equal distances of at least 1 nm from each other.